Stormwater Phase II

Developing an Effective
Erosion and Sediment Control Program
for Construction Sites

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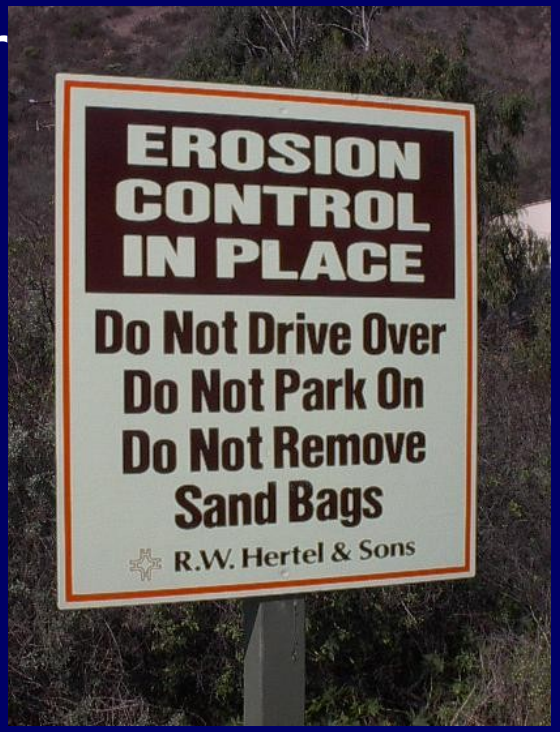
Key topics to be addressed:

- Inspection program
  - Selecting sites
  - Conducting inspections
  - Documentation and repor



Inspection program: Why inspect construction sites?

- Ensure permit coverage
- Determine compliance with local/state permits
- Respond to public complaints
- Demonstrate field presence
- Keep water clean!

Provide staff and contractors with a clear understanding of basic ESC concepts

Preserve existing vegetation

Divert upland runoff around exposed soil

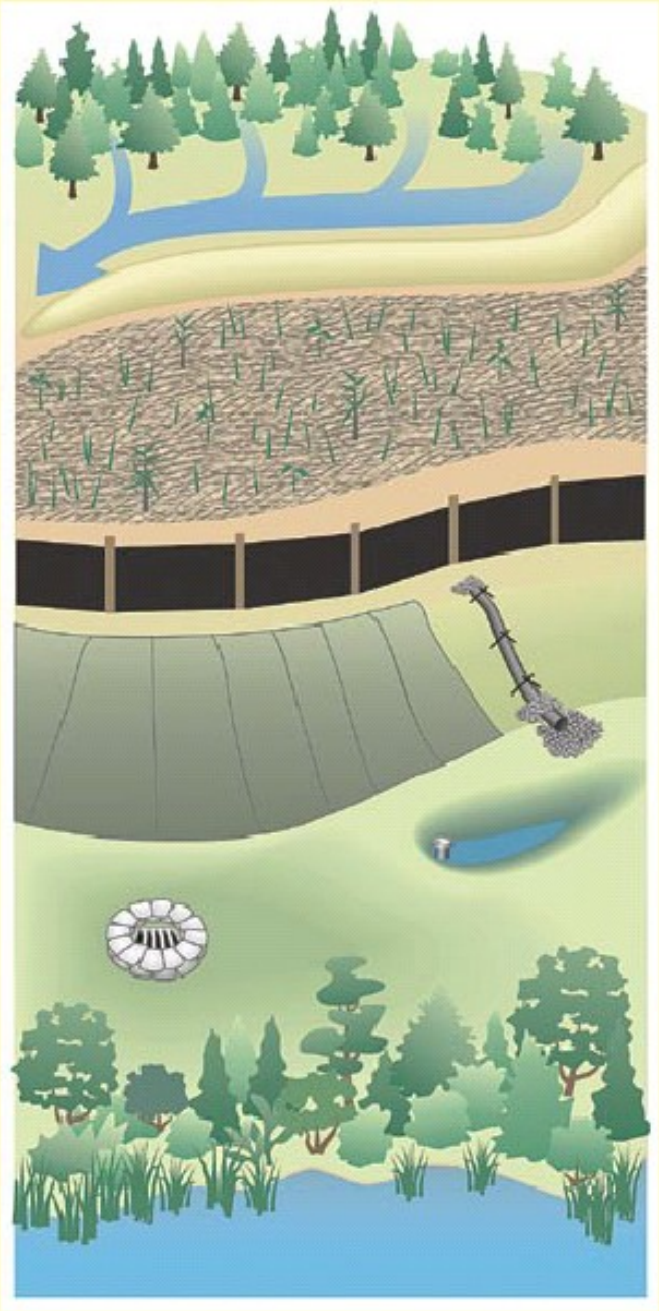
Seed/mulch/ cover bare soil immediately

Use silt fences to trap sediment in runoff

Protect slopes and channels from gullying

Install sediment traps and settling basins

Preserve vegetation near all waterways



Inspector responsibilities

- Be familiar with local ordinances and state regulations
- Ensure compliance with local ordinances and permits
- Report significant noncompliance with state NPDES permit requirements

Professional responsibilities

- Inspectors are expected to perform their duties with the highest degree of professionalism
- Inspectors must be tactful, courteous, and diplomatic - not argumentative or confrontational
- Do not speak derogatorily of any product, manufacturer, company, agency, or person
- Remember to always dress appropriately
- Observe all safety procedures

Information collection

- Inspectors must provide detailed records & reports due to possible civil, criminal, or administrative actions
  - Back up findings with evidence, including photographs, document copies, statements, and personal observations
  - Collect and preserve records that can withstand challenge in legal proceedings
  - Write clear, objective, and informative inspection reports

Planning the inspection

- Targeting inspection sites:
  - Get names from local & state (NOI) database
  - Geographical (drainage area) targeting
  - Random drive-bys
  - Sensitive sites
  - Past compliance history
  - Federal, state, and local natural resource agency suggestions
  - Citizen tips and complaints

When is the best time to inspect?

- Inspections will need to be performed at any time, but are more effective during runoff events (rainfall, snowmelt, monsoons)
- Be flexible, plan inspections during wet weather
- Dress for the weather
- Take the appropriate gear

Procedural responsibilities

- Inspectors should observe standard procedures for conducting each inspection. This includes:
  - Pre-inspection prepar
  - Entry & initial contac
  - Opening conference
  - Site inspection
  - Closing conference
  - Inspection report

Pre-inspection activities

- File review: local permits, state “Notice of Intent,” previous inspection reports, enforcement actions, etc.
- Develop inspection plan: list of records to review, safety equipment, field notebook, camera/film

Entry and introduction

- Observe surroundings before making entry
- Ask for person in charge
- Present credentials or ID
- Make sure to get consent!
- What to do if denied entry
  - Do not escalate!
  - Ask for reasons, try to address
  - Leave if access is still denied
  - Follow up via enforcement action, letter, phone call, referral to state agency, etc.

Opening conference & records review

- State purpose of inspection & basic process
- List records you will be reviewing
  - Copy of Notice of Intent letter/form
  - Contractor SWPP plan; ESC plan
  - Grading permit or etc. from local government
  - Signed, dated inspection reports (weekly)
  - CWA 404 permits & CWA 401 certifications
- Get OK for taking photos
- Ask about any safety issues or requirements

What should be in the SWPPP file?

- Site description (map, schedule, slopes, etc.)
- Erosion & sediment control plan & measures
- Plan for other controls (trash, sewage, etc)
- Locally required permits or approvals
- Maintenance procedures (sediment removal, etc.)
- Signed inspection reports (weekly, after rainfall)
- Controls on other discharges (fuel, etc)
- Contractor & subcontractor certification

Permittee inspection reports

Inspection reports must contain the following:

1) Scope of the inspection (what, where)
2) Name and qualifications of the inspector
3) Date of the inspection
4) Major observations relating to the implementation of the SWPP plan
5) Any corrective actions taken
6) Signature of the inspector

Inspection reports kept on file with the BMP plan for at least three (3) years after the date of inspection, or until one (1) year after permit coverage ends.

CONSTRUCTION SITE INSPECTION CHECKLIST

Inspected By: _____

Project: _____

Contractor: _____

Date: _____

Check "Yes" or "No" or "N/A" if not applicable.

YES	NO	N/A		
_____	_____	_____	1.	Has there been rain at the site since the last inspection?
_____	_____	_____	2.	Are all sediment barriers (e.g., sandbags, straw bales, and silt fences) in place in accordance with the Plan and are they functioning properly?
_____	_____	_____	3.	If present, are all exposed slopes protected from erosion through the implementation of acceptable soil stabilization practices?
_____	_____	_____	4.	If present, are all sediment traps/basins installed and functioning properly?
_____	_____	_____	5.	Are all material handling and storage areas reasonably clean and free of spills, leaks, or other deleterious materials?
_____	_____	_____	6.	Are all equipment storage and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious materials?
_____	_____	_____	7.	Are all materials and equipment properly covered?
_____	_____	_____	8.	Are all external discharge points (i.e., outfalls) reasonably free of any noticeable pollutant discharges?
_____	_____	_____	9.	Are all internal discharge points (i.e., storm drain inlets) provided with inlet protection?

INSPECTION LOG

The site shall be inspected before and after storm events with 0.25 inches or greater predicted or actual precipitation, and documented on the Construction Site Inspection Checklist Form. Incidents of noncompliance must be reported to the Engineer. A log of all inspections, as shown below, shall be kept current.

Date	Inspector	Type of Inspection			Observations (If post-storm inspection, note size of storm in inches)
		Routine	Pre-Storm	Post-Storm	

Inspecting erosion & sediment controls

- Documentation is key!
  - Field notebook with notes
  - Inspection checklist
  - Samples/chain of custody
  - Photos/photo log
  - Copies of documents
  - Drawings & diagrams

- Reports include site info, permit number, date, inspector name, site manager name, downstream receiving water, photo locations, people interviewed, other important information

Closing conference & report

- Debrief person in charge
  - Explain that results are not final until all documents and photos have been reviewed
  - Explain deficiencies found, areas of concern (parts of ESC plan missing, controls not installed, mud on street, inspections not being done, silt fence down, etc.)
  - Leave compliance assistance information
- Your checklist will be your report
- Use narrative sections to provide more info on suspected violations & areas of concern
- Include copies of documents, photos, sampling results, etc.

APPENDIX **H**

Kentucky Construction Site Inspection Report

Kentucky Erosion and Sediment Control Permit Compliance Inspection Report

General Site Information:

COMPANY:	**COUNTY:**
SITE:	**DATE:**

Permit Compliance Information:

	Yes	No
Copy of permit kept on site		
Copy of Best Management Practices (BMP) Plan kept on site		
Site specific description of project timing/ phasing and implementation		
Adequate site map showing:		
• Drainage patterns indicated on plan		
• Receiving waters (stream, river, lake, wetland, etc.) named		
• Approximate slopes after major grading		
• Area of soil disturbance		
• Undisturbed areas and vegetative buffer zones		
• Location of structural and non-structural controls (BMPs)		
• Areas where stabilization practices are to be employed		
• Storm water discharge locations		

Specific Site Information:

Name of receiving stream:	
Total area of site:	
Area disturbed:	

Inspection Results:

Inspection Criteria: Satisfactory, Marginal, Unsatisfactory	**S**	**M**	**U**
Condition of receiving stream			
Is BMP Plan adequately implemented?			
Timely seeding and mulching			
• Revegetation on cut/fill/cleared areas			
• Condition of slope areas			

Structural Controls			
• Drainage ditch protection/liners installed			
• Inlet protection for curb drains, etc.			
• Outlet protection—no erosion or scour			
• Silt fences below bare soil areas			
• Rock check dams in ditches			
• Sediment traps/ponds maintained			
• Other controls			
Other Controls			
• Secondary containment for fuel; maintenance area designated			
• Proper disposal of concrete wastes; wash in designated area			
• Other (non-storm water discharge, etc.)			
• Off-site tracking of sediment prevented			
Compliance with State and Local Regulations			
• Waste, fertilizer, paint, pesticide/herbicide storage and disposal			
• Proper sewage management			
Operation and Maintenance of BMPs			
• Maintenance plan incorporated into written BMP Plan			
• Maintenance plan followed			
• Maintenance documented			
• Inspections done as required and documented			
• Inspection reports completed and maintained on site, in file			
Contractor Certification on File			
Plan Certification on File			

Comments:

Inspector's Signature

COUNTY OF ORANGE / PDSD
Stormwater Program Inspection Form
FOR INSPECTION OF PRIVATE PROJECTS ISSUED GRADING & BUILDING PERMITS

SECTION I - GENERAL					
PROJECT ID:		INSPECTOR(S):			
ADDRESS/TRACT:					
ARRIVAL TIME:		DEPARTURE TIME:		PHOTOGRAPHS TAKEN:	☐ Y ☐ N
WEATHER CONDITION:		INSPECTION DATE:			
SITE PRIORITY (Check Applicable)	☐ HIGH PRIORITY	☐ MEDIUM PRIORITY			
	☐ LOW PRIORITY	☐ PRIORITY UNKNOWN			
SEASON (Check Applicable)	☐ WET (OCTOBER 1 THROUGH APRIL 30)	☐ DRY (MAY 1 THROUGH SEPTEMBER 30)			
NAME OF SITE REPRESENTATIVE PRESENT DURING INSPECTION:		PHONE No:			
DEVELOPMENT SIZE:		ESTIMATED % OF DISTURBED AREA:		THOMAS BROS. MAP/PG GRID	
DEVELOPER/CONTRACTOR NAME		OWNER NAME			

TYPE OF CONSTRUCTION:

☐ RESIDENTIAL ☐ COMMERCIAL ☐ INDUSTRIAL ☐ INFRASTRUCTURE

☐ RECONSTRUCTION ☐ TRANSPORTATION ☐ OTHER

SECTION II - RESULTS OF INSPECTION				
Erosion Control Practices	Y	N	N/A	COMMENTS
1. Are erosion controls being implemented and maintained on inactive and active disturbed soil areas (sheeting, mulch, hay, soil stabilizers, etc.), in accordance with Erosion and Sediment Control Plans (ESCPs) and provisions of the Grading Ordinance?				
2. Erosion observed? *If YES, describe the evidence of the erosion and whether it is major or minor.*				
Sediment Control Practices	Y	N	N/A	COMMENTS
3. Are sediment controls being implemented and maintained on all significant slopes (silt fences, fiber rolls, etc. at the base of slopes) and the downstream perimeter, in accordance with Erosion and Sediment Control Plans (ESCPs) and provisions of the Grading Ordinance?				
4. Sediment discharge observed? *If YES, describe the evidence of the discharge and whether it is major or minor. (If the discharge could impact wildlife, sensitive habitat/endangered species, an impaired water body (303d listed), ESA or ASBS area, go to the "Evaluation of Potential Impacts to Human or Environmental Health" form.)*				

Compliance Assistance

- First: Share information on regulatory compliance, pollution prevention or technical guidance materials or websites
- Second: Share info and insight into a facility's particular compliance problem and/or information on recognized industry practices to reduce or eliminate pollution at the facility.
  - Don't tell the facility which BMP to use. Explain the issue on site, but facility must decide how best to implement SWPPP

Inspecting Erosion and Sediment Controls in the Field

- ✓ General Housekeeping
- ✓ Drainage System Controls
- ✓ Controls for Bare Soil Areas
- ✓ Slope Protection

✓General housekeeping

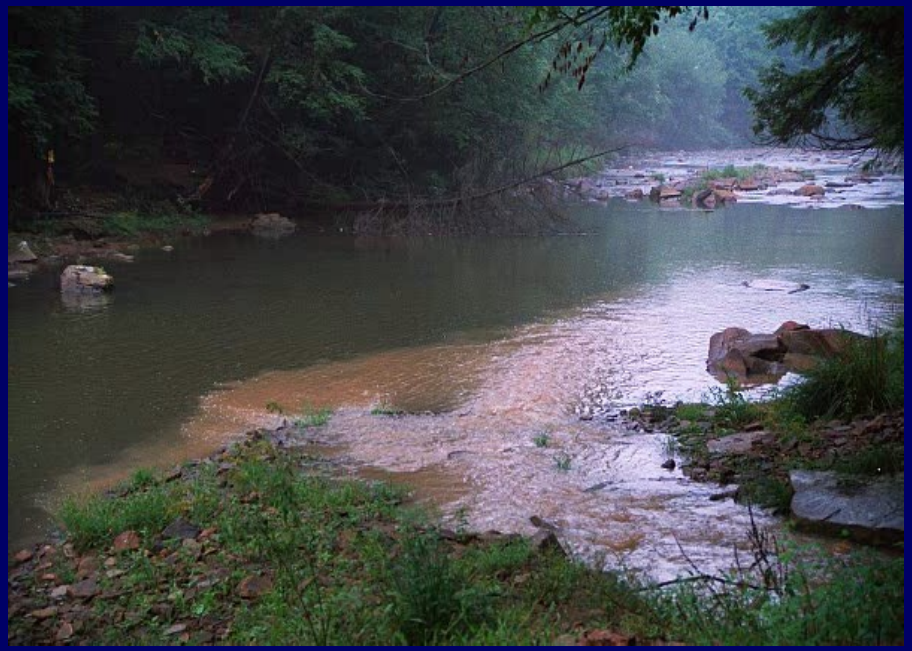
- Fuel, oil, paint, hazardous waste mgmt
- Concrete washout sites
- Trash & debris managemer
- Sewage management
- Mud tracking on roadways
- [illegible]

Poor Housekeeping, with sediment discharging from site

Well-designed concrete washout.

✓Drainage system controls

- Run-on diversions, lined pass-thru channels
- Protected inlets and outlets
- Channels lined, silt check dams installed
- Vegetated buffers
- Sediment traps and detention basins
- No muddy runoff entering streams, rivers, lakes, or wetlands

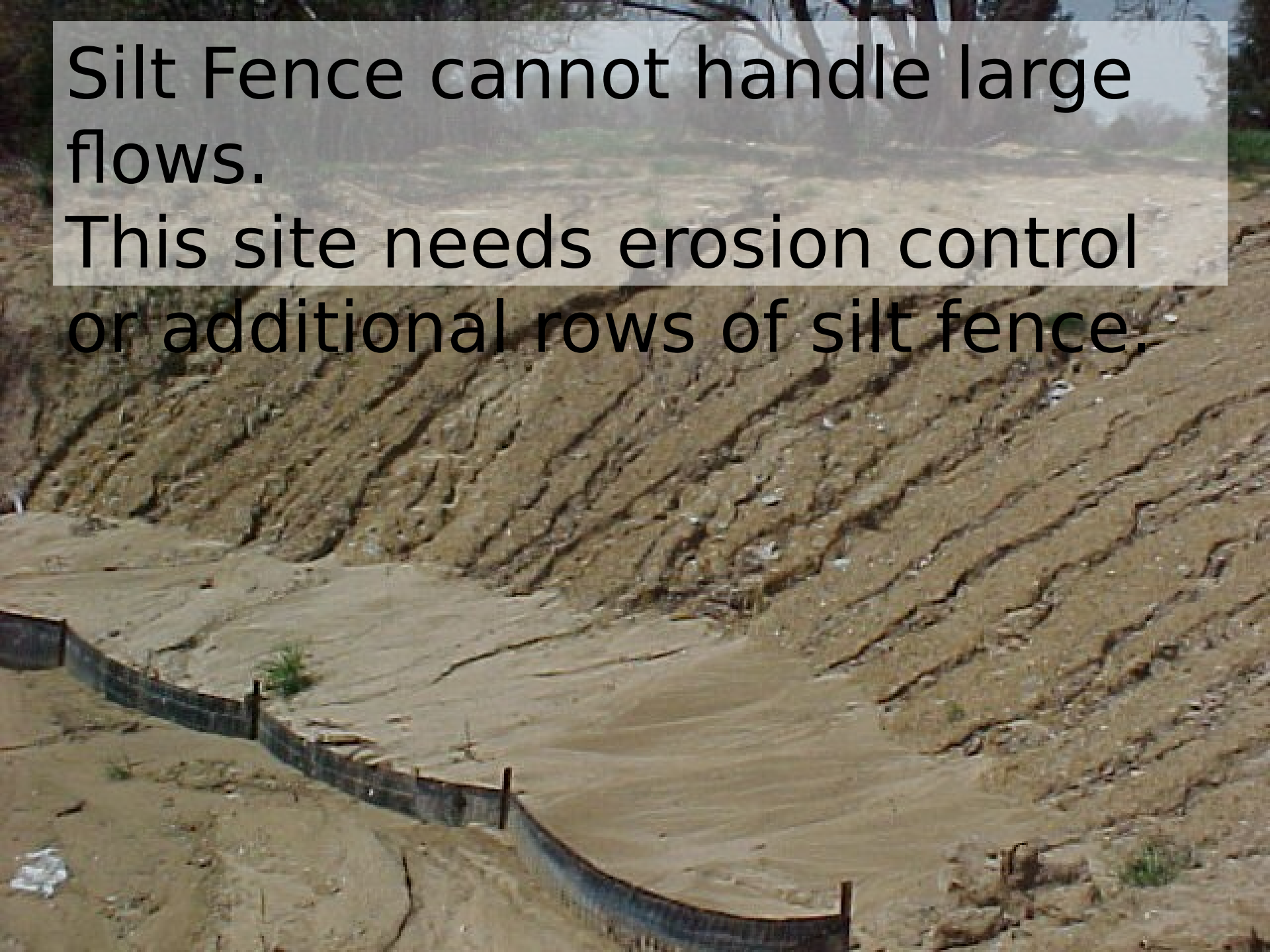


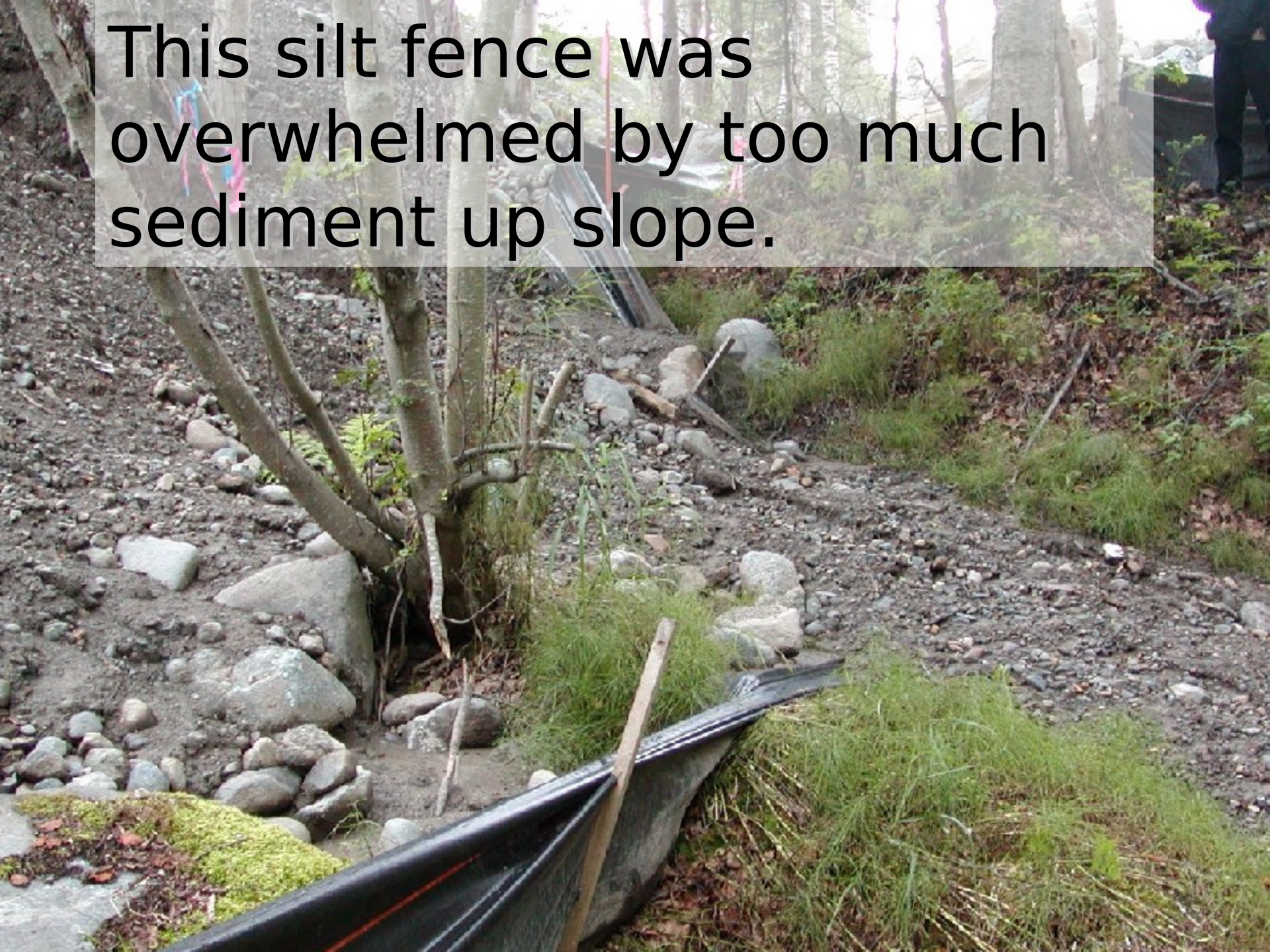
Poor storm drain inlet protection.

Poor concrete washout; poor inlet protectio

Poor Inlet Protection

Protect inlets with sand bags, silt fence or other controls.


Silt Fence cannot handle large flows.
This site needs erosion control or additional rows of silt fence.


This silt fence was overwhelmed by too much sediment up slope.

Protect streams from erosio

Stream bank protection with erosion control blankets during installation and after seed emergence

Silt Check Dams

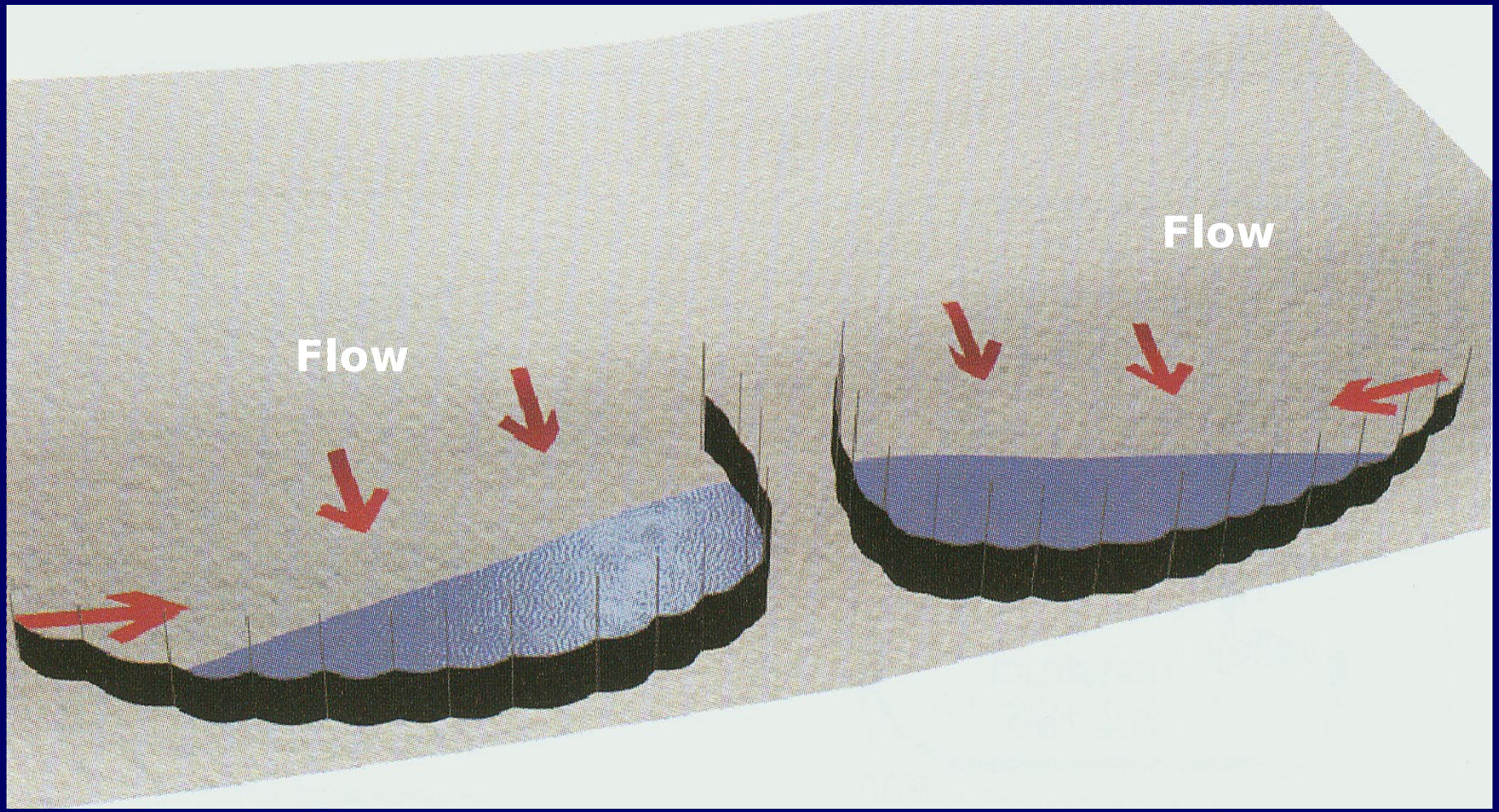
Constructed in ditches to reduce runoff velocity and trap sediment

Bottom of upper silt check is at the same elevation as the top of downstream check

✓Controls for bare soil areas

- Run-on controls (diversion, lined channel)
- Silt fence or barrier below sloping sites
- Soil stockpiles protected (seeded, fenced)
- Seeded within 21 days if not being worked (except when ground is frozen)

Breaking up long slopes with several short curved fence sections greatly increases sediment storage area



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✓Slope protection

- Seed & mulch immediately after final grade
- Blankets on slopes up to ~ 2:1
- Turf mats on slopes ≥ 1:1
- Temporary/permanent downdrains used to carry heavy flows down erodible slopes
- No visible, uncontrolled gullying on slopes

The benefits of seeding steep slopes

Break up steep slopes

Common violations at construction sites

- Easily Identified Violations:
  - Did not submit NOI for statewide NPDES permit coverage
  - No SWPPP or erosion control plan on-site
  - SWPPP available but missing required sections
  - BMPs identified in the SWPPP are not implemented, adequately implemented, or inappropriate
  - Unauthorized non-stormwater discharges

Case Study: Douglas County, CO

- Level 1 violations (immediate stop work order)
  - Clearing, grubbing or grading without a Douglas County GESC Permit
  - Failure to schedule a preconstruction conference
  - Failure to be able to contact the GESC Manager or GESC Manager's alternate during a Level II Violation
  - Failure to restrict operations to approved limits of construction.
  - Failure to clean up tracking of material onto roadways and adjacent paved areas
  - Exporting material to or importing material from a non-permitted site.
  - Failure to follow approved phasing plan.
  - Failure to correct Level II violations per the directives of the GESC inspector.

Level II Violations

- Shall be corrected as soon as owner/operator is notified
- Examples
  - **Tracking of material on to roadways and adjacent paved areas.**
  - **Failure to make needed plan revisions to temporary erosion and sediment control measures as directed by the GESC Inspector**

Level II Violations

- Shall be corrected within 48 hours of inspection or as authorized by the inspector
- Examples
  - **Failure to provide routine maintenance for erosion and sediment controls**
  - **Installation of non-Douglas County-approved erosion and sediment control BMPs**
  - **Failure to provide temporary inlet protection within 48-hours of pouring of inlet**
  - **Failure to provide inlet protection within 48-hours of installation of top lift of asphalt or pour**
  - **Staging of equipment outside of Stabilized Staging Area (SSA)**